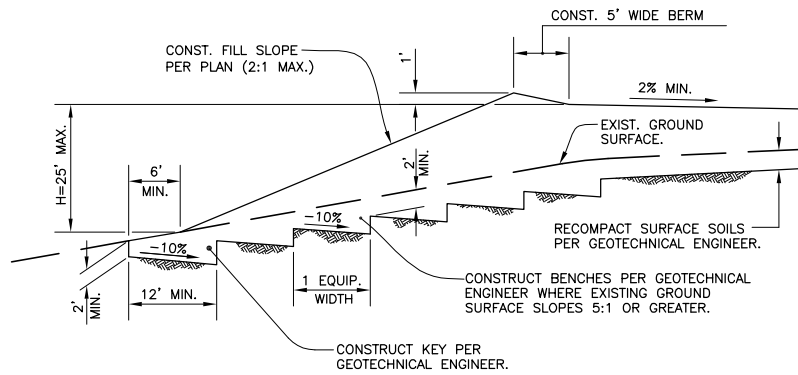

DRAFT ENVIRONMENTAL ASSESSMENT

*SANTA BARBARA COUNTY PARKS WATER SYSTEM UPGRADES AT LAKE
CACHUMA CAMPGROUND*

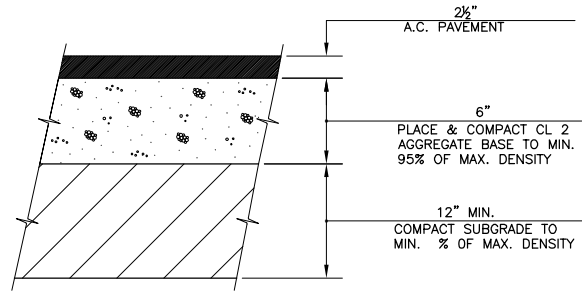
Appendix A
Preliminary Project Designs Set 1

May 2010

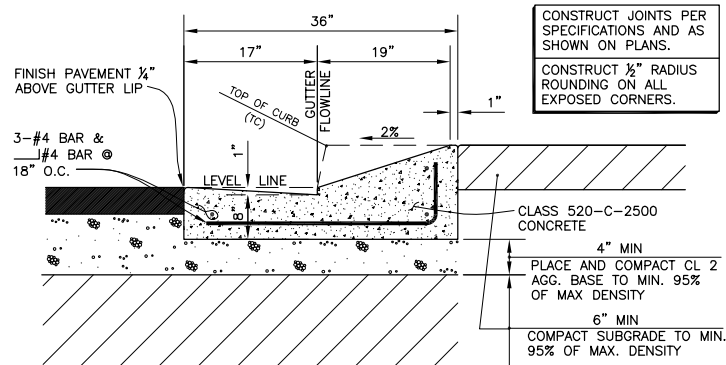
\\System41\Share\ShareCAD\DWG\0352\WSDS_CD-1_CD-4.dwg, CD-1 pdf, 5/20/2009 2:56:37 PM, ssoria, Bluebeam PDFPrinter HighRes.pcs; ANSI_B (11.00_x_17.00_inches); 1:2.16055



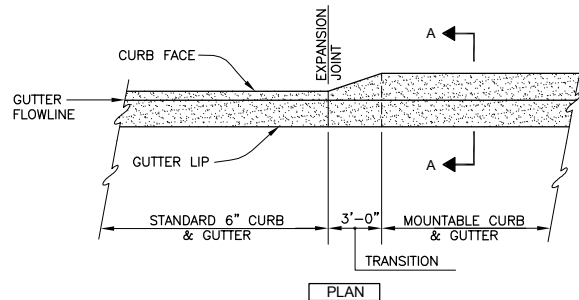
1 FILL SLOPE KEY AND BENCH DETAIL
NOT TO SCALE



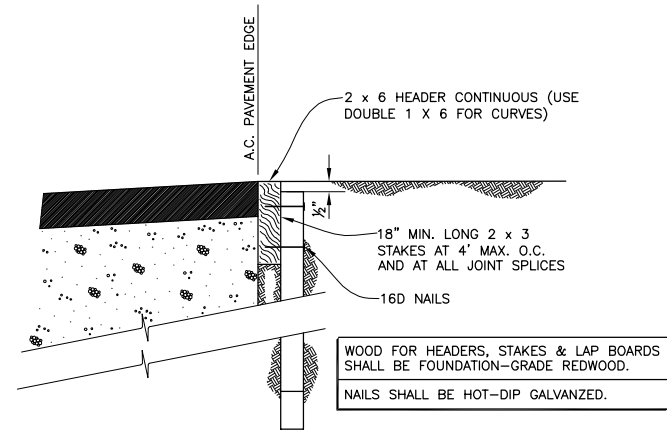
2 TYPICAL A.C. PAVEMENT STRUCTURAL SECTION
NOT TO SCALE



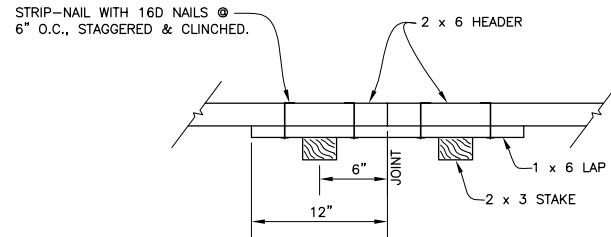
3 MOUNTABLE CURB & GUTTER DETAIL
NOT TO SCALE



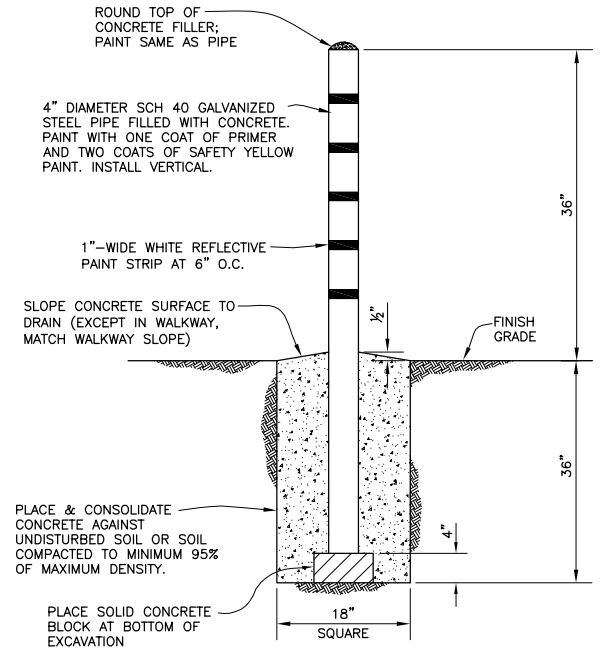
4 MOUNTABLE CURB & GUTTER DETAIL
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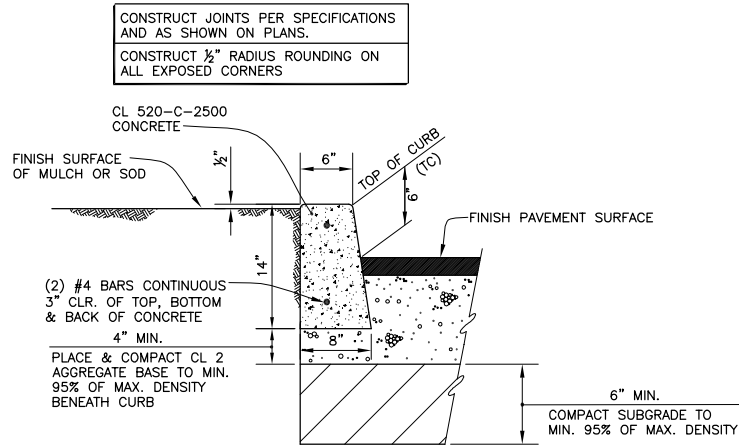
5 2 x 6 WOOD HEADER DETAIL
NOT TO SCALE



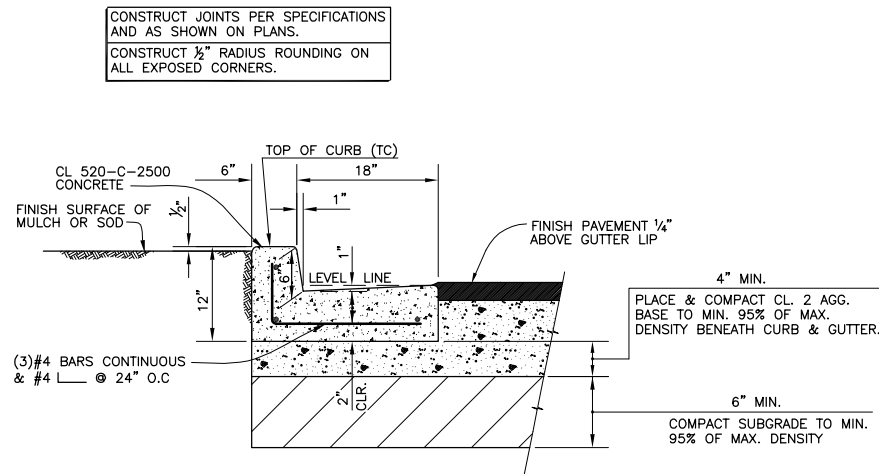
6 2 x 6 WOOD HEADER DETAIL
NOT TO SCALE



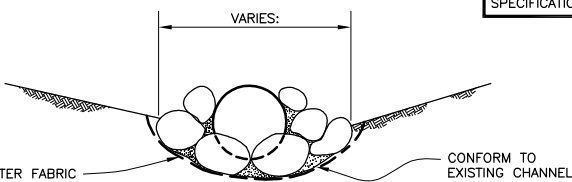
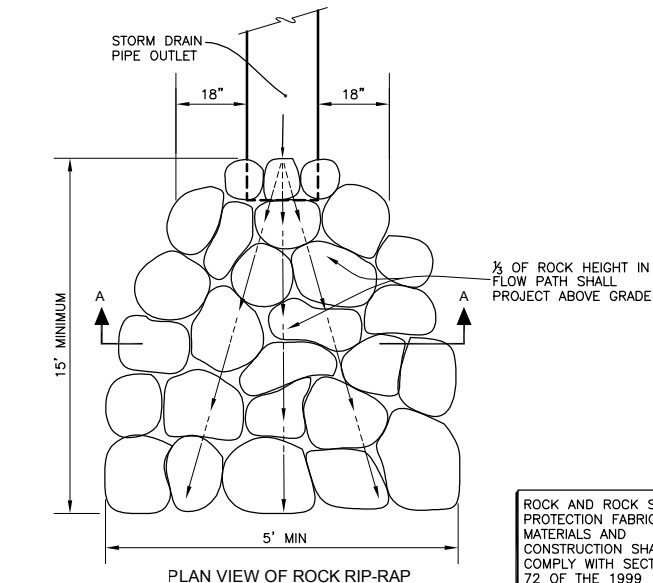
7 GUARD POST DETAIL
NOT TO SCALE



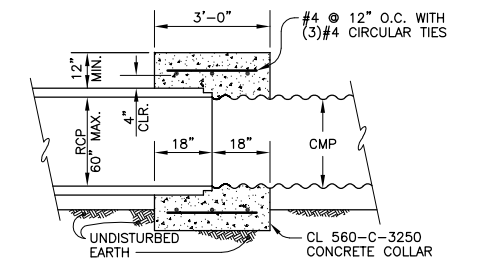
8 6\"/>



9 6\"/>



11 UNGROUTED ROCK RIP-RAP
ENERGY DISSIPATOR DETAILS
NOT TO SCALE



12 RCP/CMP JUNCTION COLLAR DETAIL
NOT TO SCALE

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FLOWERS & ASSOCIATES, INC.
CIVIL ENGINEERS
201 N. Calle Cesar Chavez, Suite 100 Santa Barbara, CA 93103
Telephone (805) 966-2224
BY: *[Signature]* PROJECT ENGINEER DATE: 5/20/09

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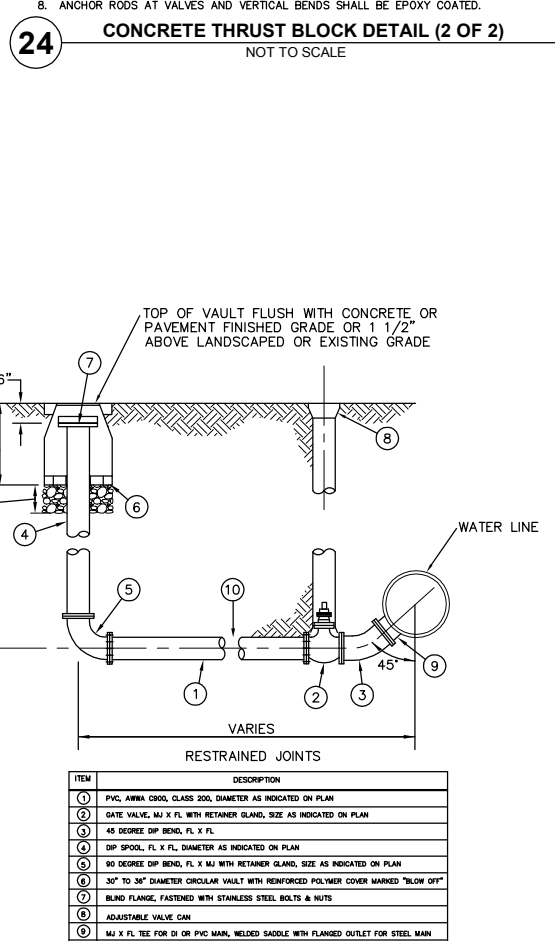


COUNTY OF SANTA BARBARA
COUNTY PARKS
610 Mission Canyon Road
Santa Barbara, CA 93105

Design: ELF Check: BS
Drawn: SS
Project Engineer:
Date:

SITE DETAILS
LAKE CACHUMA WATER STORAGE AND
DISTRIBUTION SYSTEM IMPROVEMENTS
COUNTY OF SANTA BARBARA, CALIFORNIA

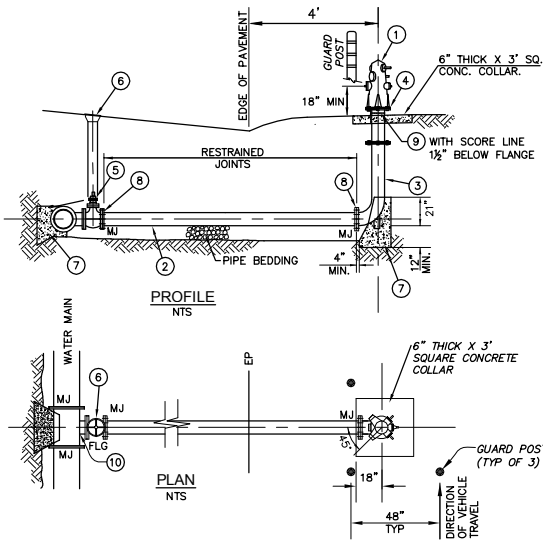
CD-1
SHT. 23 OF 35
W.O. 0352



| ITEM | DESCRIPTION |
|------|-------------------------------------------------------------------------------------|
| 1 | PVC, AWWA C900, CLASS 200, DIAMETER AS INDICATED ON PLAN |
| 2 | GATE VALVE, M.J. X FL. WITH RETAINER GLAND, SIZE AS INDICATED ON PLAN |
| 3 | 45 DEGREE DIP BEND, FL. X FL. |
| 4 | DIP SPOOL, FL. X FL. DIAMETER AS INDICATED ON PLAN |
| 5 | 90 DEGREE DIP BEND, FL. X MJ. WITH RETAINER GLAND, SIZE AS INDICATED ON PLAN |
| 6 | 30" TO 36" DIAMETER CIRCULAR VAULT WITH REINFORCED POLYMER COVER MARKED "BLOW OFF |
| 7 | BLIND FLANGE, FASTENED WITH STAINLESS STEEL BOLTS & NUTS |
| 8 | ADJUSTABLE VALVE CAN |
| 9 | M.J. X FL. TEE FOR DI. OR CAN MAN, WELDED SADDLE WITH FLANGED OUTLET FOR STEEL MAIN |
| 10 | LAYOUT AND DIMENSIONS GIVEN BY THE PLAN |

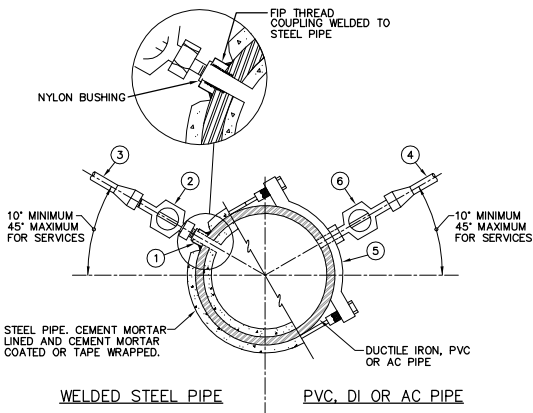
| | |
|-------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|
| <u>PIPING DETAILS</u> LAKE CACHUMA WATER STORAGE AND DISTRIBUTION SYSTEM IMPROVEMENTS <small>PROJECT LOCATION MAP SHEET</small> | CD-2 <small>SHT. 24 OF 35</small> |
|-------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|

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| ITEM | DESCRIPTION |
|------|----------------------------------------------------------------------------------------------------------------------------------|
| 1 | WET BARREL BRONZE FIRE HYDRANT WITH BRONZE CAPS |
| 2 | 6" DIAMETER DUCTILE IRON PIPE (8" WITH REDUCER AT BURY SHERE CALLED FOR ON THE PLANS) |
| 3 | 6" DUCTILE IRON BURY WITH 90° BEND MJ X FL, LENGTH AS REQUIRED (24" TYP) |
| 4 | HOLLOW BOLTS ON TOP FLANGE (TIPS DOWN) |
| 5 | TEE OR TAPPING SLEEVE WITH 6" FL X MJ GATE VALVE |
| 6 | ADJUSTABLE VALVE CAN |
| 7 | CONCRETE THRUST BLOCKS CONSTRUCTED WITH A MINIMUM 18 SF OF BEARING AREA |
| 8 | MECHANICAL JOINT WITH RETAINER GLAND |
| 9 | 6" DUCTILE IRON FLANGED BREAK-OFF SPOOL WITH SCORE LINE, AND 6-HOLE BOLT 10 PATTERN FOR TOP FLANGE, LENGTH AS REQUIRED (12" MIN) |
| 10 | TEE, LINE SIZE WITH 6" SIDE OUTLET |

30 FIRE HYDRANT ASSEMBLY DETAIL
NOT TO SCALE



| ITEM | DESCRIPTION |
|------|--------------------------------------------------------------------------------------------------------------------------|
| 1 | STANDARD STEEL COUPLING WITH FIP THREAD WELDED TO STEEL WATERLINE. |
| 2 | CORP. STOP WITH MIP THREAD INLET WITH NYLON BUSHING AND FLARED OUTLET. ALL THREADED JOINTS SHALL INCLUDE JOINT COMPOUND. |
| 3 | COPPER/BRASS CORP. STOP, VALVE, PIPE, NIPPLE OR FITTING |
| 4 | TYPE "K" SOFT COPPER TUBING. |
| 5 | BRONZE SERVICE SADDLE WITH FIP THREAD. |
| 6 | CORP. STOP WITH MIP THREADED INLET AND FLARED OUTLET. ALL THREAD JOINTS SHALL INCLUDE JOINT COMPOUND. |

NOTES

- SERVICE AND OTHER TAPS SHALL NOT BE MADE CLOSER THAN 2 FEET TO A BELL, COUPLING, JOINT, FITTING, OR OTHER SERVICE.
- ANGLE OFFSET SERVICES WITHIN 15' OR LESS OF EACH OTHER SO THEY DO NOT ALIGN DOWN THE PIPE

31 2 1/2" AND SMALLER SERVICE CONNECTION
NOT TO SCALE

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CIVIL ENGINEERS
201 N. Calle Cesar Chavez, Suite 100 Santa Barbara, CA 93103
Telephone (805) 966-2224

BY: *[Signature]*

PROJECT ENGINEER

DATE: 5/20/09

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COUNTY OF SANTA BARBARA
COUNTY PARKS
610 Mission Canyon Road
Santa Barbara, CA 93105

Design: ELF Check: BS
Drawn: SS
Project Engineer:
Date:

PIPING DETAILS

LAKE CACHUMA WATER STORAGE AND DISTRIBUTION SYSTEM IMPROVEMENTS
COUNTY OF SANTA BARBARA, CALIFORNIA

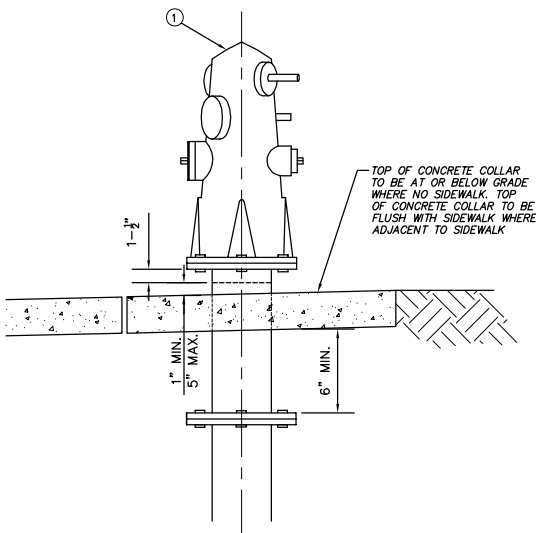
CD-3

SHT. 25 OF 35

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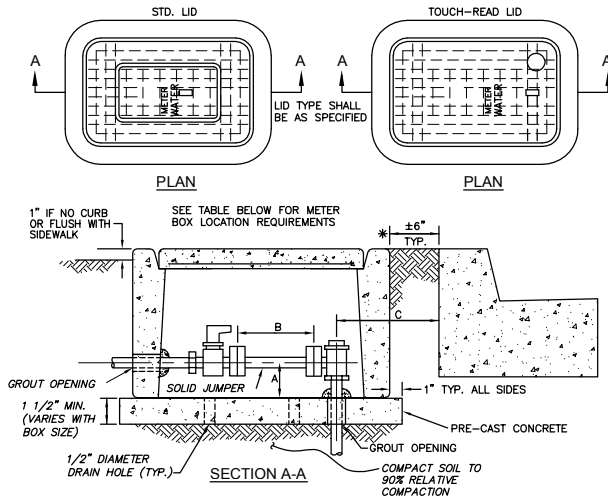


BREAK OFF SPOOL / CONCRETE COLLAR DETAIL

NOTES

- FIRE HYDRANT SHALL BE J. JONES NO. 3765 WITH FACTORY PAINT, ONE COAT XIM POWER SEALER 400 AND TWO COATS AERO-PLATE #462 GLOW BRIGHT YELLOW
- CONCRETE THRUST BLOCKS SHALL BE CONSTRUCTED IN CONFORMANCE WITH TYPICAL DETAIL.
- BREAK-OFF SPOOL SHALL BE EPOXY COATED.
- IF HYDRANT IS NOT PROTECTED BY CURB, 3 GUARD POSTS SHALL BE PLACED TO PROTECT HYDRANT PER DETAIL.
- FIRE HYDRANT SHALL BE INSTALLED PLUMB.
- REQUIREMENTS. FIRE HYDRANTS SHALL BE LOCATED A MINIMUM OF FIVE FEET CLEAR OF ABOVE AND BELOW GROUND OBSTRUCTIONS SUCH AS VAULTS, UTILITIES AND DRIVEWAYS, AND TEN FEET CLEAR OF TREES AND BUSHES.
- BRONZE CAPS SHALL BE CHAINED TO HYDRANT AND SHALL HAVE 1/8" DIAMETER WEEP HOLE DRILLED ADJACENT TO OPERATING NUT.

32 FIRE HYDRANT INSTALLATION DETAIL
NOT TO SCALE



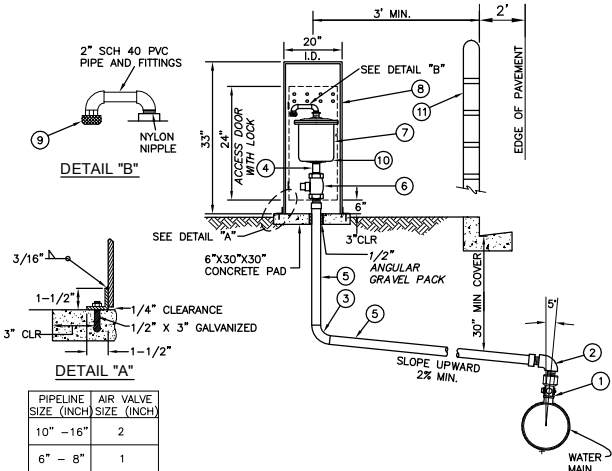
| METER SIZE | A | B | C |
|------------|--------|---------|---------|
| 3/4" | 3 1/2" | 7 3/4" | 10 1/2" |
| 1" | 3 1/2" | 11" | 9 3/4" |
| 1 1/2" | 4" | 13 1/4" | 13" |
| 2" | 4" | 17 1/4" | 11" |

| METER BOX LOCATIONS | |
|----------------------------------------------------|---------------------------------------------------------------------------|
| CASE NO. | CONDITIONS |
| 1 | GRASS PARKWAY BETWEEN CURB AND SIDEWALK. |
| 2 | SIDEWALK DIRECTLY BEHIND CURB AND R/W EXTENDS MIN. OF 4' BEHIND SIDEWALK. |
| 3 | SIDEWALK DIRECTLY BEHIND CURB AND R/W ENDS NEAR BACK OF SIDEWALK. |
| METER BOX LOCATION | |
| 6" BEHIND BACK OF CURB (AS SHOWN IN DETAIL ABOVE.) | |
| DIRECTLY BEHIND SIDEWALK. | |
| 6" BEHIND BACK OF CURB (AS SHOWN IN DETAIL ABOVE.) | |

NOTES

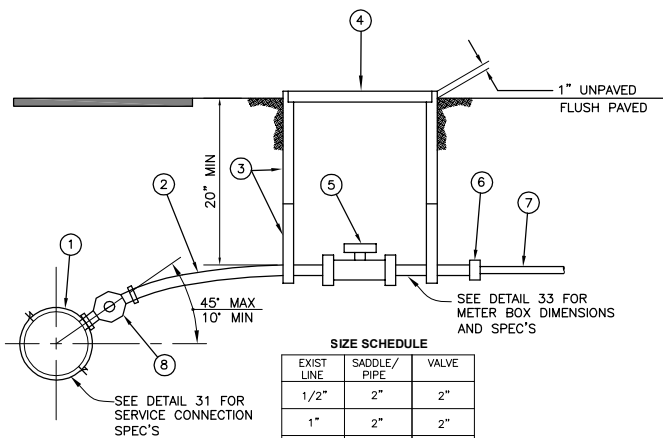
- METER BOX BASE SHALL BE PRE-CAST CONCRETE.
- FOR BOXES IN AREA WHERE VEHICULAR TRAVEL IS ANTICIPATED, A TRAFFIC RATED LID (H-20) WITH READING LID SHALL BE USED.
- ALL JOINTS BETWEEN BASE AND METER BOX AND OPENINGS AT METER BOX INLET & OUTLET SHALL BE MORTARED AS DIRECTED.
- TRAFFIC RATED COVERS WITH READING LID ARE REQUIRED WHERE ROLLED CURB AND/OR NO CURBS HAVE BEEN INSTALLED ALONG EDGE OF PAVEMENT. WHERE NO CURBS EXIST, THE METER BOX SHALL BE LOCATED 15" BEHIND EDGE OF PAVEMENT.
- METERS SHALL BE LOCATED A MINIMUM OF FIVE FEET CLEAR OF ABOVE AND BELOW GROUND OBSTRUCTIONS SUCH AS VAULTS, UTILITIES, AND DRIVEWAYS, AND TEN FEET CLEAR OF TREES AND BUSHES.

33 METER BOX FOR METERS UP TO 2" DETAIL
NOT TO SCALE



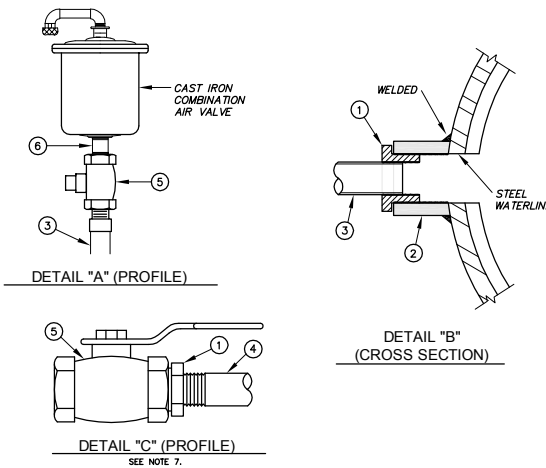
| ITEM | DESCRIPTION |
|------|-----------------------------------------------------------------------------------|
| 1 | SERVICE CONNECTION INSTALLED PER STD. DETAIL WITH FIP THREAD OUTLET CORP. STOP |
| 2 | 2" BRASS 90 DEGREE ELBOW, MIP THREAD X FIP THREAD |
| 3 | 2" COPPER 90 DEGREE ELBOW, SILVER SOLDERED |
| 4 | 1 1/2" BRASS NIPPLE WITH 2" NYLON BUSHINGS |
| 5 | 2" TYPE K SOFT COPPER TUBING WITH MIP ADAPTER, AND HARD COPPER RISER |
| 6 | 2" BALL VALVE, FIP THREAD X FIP THREAD (WITH HANDLE) |
| 7 | 2" COMBINATION AIR VALVE |
| 8 | 20" ID, 10 GAUGE STEEL PIPE, FABRICATED COVER, GALVANIZED, AND PAINTED DARK GREEN |
| 9 | INSECT SCREEN |
| 10 | BLEED LINE: NYLON BUSHING, 1/4" BRASS NIPPLE, 1/4" BALL VALVE, AND 1/4" PLUG |
| 11 | IF NO CURB, CONSTRUCT 3 GUARD POSTS (SEE DETAIL 30 FOR LAYOUT) |

34 1" & 2" COMBINATION AIR VALVE DETAIL
NOT TO SCALE



| ITEM | DESCRIPTION |
|------|---------------------------------------------------------------------------------------------------------------|
| 1 | BRONZE SERVICE SADDLE WITH FIP (THREAD, 2-1/2" MAX.) |
| 2 | SCHEDULE 40 PVC PIPE (LINE SIZE OR 2" MIN.) |
| 3 | VALVE BOX WITH EXTENSIONS (11" X 17" MIN. CLR INSIDE) ACP E17 OR EQUIVALENT |
| 4 | BOLT DOWN GALVANIZED STEEL PLATE, TRAFFIC RATED, "WATER" ON LID. |
| 5 | LINE SIZE PVC TRUE UNION VALVE, 2" MIN. |
| 6 | CONNECT TO EXISTING LINE WITH FITTINGS AND REDUCERS AS REQUIRED. THREADED CAP AT FUTURE CONNECTION LOCATIONS. |
| 7 | EXISTING MINOR DISTRIBUTION LINE, 2-1/2" MAX. |
| 8 | CORP. STOP AND PIPE ADAPTOR |

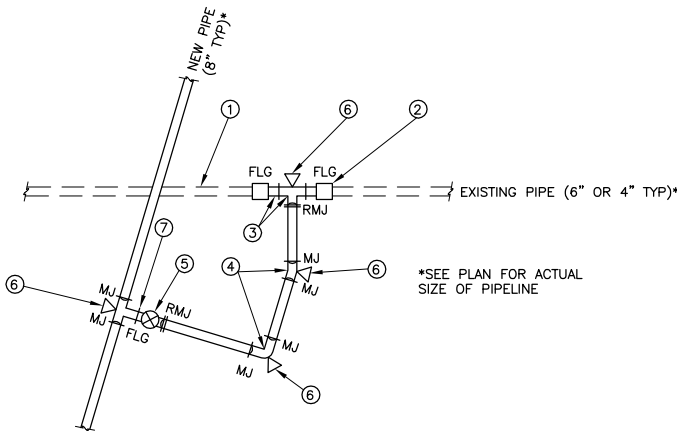
35 MINOR DISTRIBUTION LINE CONNECTION DETAIL (2-1/2" AND SMALLER)
NOT TO SCALE



NOTES

- NO DIRECT CONNECTION OF STEEL OR CAST IRON TO BRASS, BRONZE, OR COPPER SHALL BE MADE WITHOUT APPROVAL AND ISOLATORS.
- ONLY NYLON BUSHINGS SHALL BE ALLOWED. PVC BUSHINGS ARE NOT ALLOWED.
- THREDOLETS AND EXTRA-HEAVY HALF COUPLINGS SHALL BE SIZED ONE-HALF INCH LARGER THAN BRASS, BRONZE, OR COPPER CONNECTION TO ALLOW FOR NYLON BUSHING.
- WHERE EXTRA-HEAVY HALF COUPLINGS ARE USED, BASE OF COUPLING SHALL BE GROUND TO MATCH CURVATURE OF STEEL PIPE.
- NYLON BUSHING SHALL BE OMITTED WHERE COPPER/BRASS/BRONZE NIPPLES/PIPES ARE CONNECTED TO BRASS/BRONZE VALVES, AND WHERE GALVANIZED STEEL PIPE IS CONNECTED TO STEEL WATERLINES.
- DETAIL "C" APPLIES ONLY TO ABOVE GROUND INSTALLATIONS SUCH AS WELLS, BOOSTER STATIONS, AND PRESSURE REDUCING STATIONS.

36 CONNECTION OF DISSIMILAR METALS
NOT TO SCALE



NOTES:

- POTHOLE EXISTING PIPELINE TO CONFIRM LOCATION, PIPE TYPE, DIAMETER PRIOR TO CONSTRUCTION OR ORDERING PARTS
- CONNECT TO EXISTING PIPE WITH FLANGED COUPLING ADAPTER SIZED TO CONFORM TO NEW PIPE AND EXISTING PIPE. ADDITIONAL ADAPTORS SHALL BE PROVIDED AS REQUIRED TO CONNECT EXISTING PIPE.
- CONNECT TO EXISTING PIPE WITH LINE SIZED TEE AND FLANGED NIPPLES. CONNECT TO EXISTING PIPE WITH LINE SIZED BEND AND FLANGED NIPPLE AT LOCATIONS WHERE A PORTION OF THE EXISTING PIPE IS BEING ABANDONED.
- CONSTRUCT FITTINGS AS REQUIRED TO CONNECT BETWEEN NEW PIPE AND EXISTING PIPE. FITTINGS SHALL BE INSTALLED PER CONSTRUCTION DETAILS.
- CONSTRUCT LINE SIZED VALVE AND FITTING PER CONSTRUCTION DETAILS.
- CONSTRUCT THRUST BLOCKS PER TYPICAL DETAILS.
- CONSTRUCT REDUCER WHERE REQUIRED.

37 CONNECTION TO EXISTING DISTRIBUTION PIPE DETAIL (4" AND LARGER)
NOT TO SCALE

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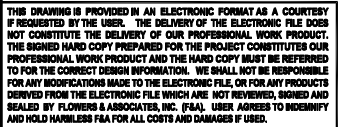
ESTIMATED EARTHWORK QUANTITIES:

| RESERVOIR NO. 2 AREA | |
|----------------------|--------------------------|
| EXCAVATION: | <u>3.500</u> CUBIC YARDS |
| EMBANKMENT: | <u>3.500</u> CUBIC YARDS |

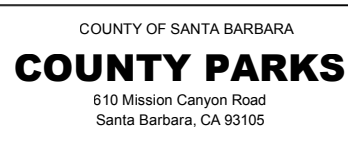
NOTE: SHRINKAGE, CONSOLIDATION AND SUBSIDENCE FACTORS AND LOSSES DUE TO CLEARING AND DEMOLITION OPERATIONS ARE NOT INCLUDED. ESTIMATED EARTHWORK QUANTITIES ARE BASED ON THE APPROXIMATE DIFFERENCE BETWEEN EXISTING GRADES AND PROPOSED FINISH GRADES OR PAVEMENT SUBGRADES, AS INDICATED ON THE PLANS, AND SHOULD VARY ACCORDING TO THESE FACTORS AND LOSSES.

CONTRACTOR SHALL ACCEPT OR CONFIRM EXISTING TOPOGRAPHIC INFORMATION. SHALL REVIEW THE SITE AND THE GEOTECHNICAL REPORT(S) AND MAKE HIS OWN INTERPRETATIONS AND CONCLUSIONS WITH RESPECT THERETO, AND SHALL PERFORM AN INDEPENDENT EARTHWORK ESTIMATE ON WHICH TO BASE HIS BID. ONCE GRADING IS STARTED, THE TOPOGRAPHIC INFORMATION HAS BEEN ACCEPTED BY CONTRACTOR.

| UTILITY & SUBSTRUCTURE INFORMATION: | | | RESPONDED, INFORMATION RECEIVED PLOTTED ON PLANS | DID NOT RESPOND, NOT PLOTTED ON PLANS |
|---------------------------------------------------|---------------------|----------------|--------------------------------------------------------|------------------------------------------|
| COMPANY | CONTACT | PHONE | | |
| P. G. & E. | BARBARA ZINAKORGIAN | (805) 346-2230 | | |
| THE GAS COMPANY | KARL MONTELEON | (818) 701-3262 | | X |
| THE GAS COMPANY TRANSMISSION | ROSALYN SQUIRES | (818) 701-4546 | X | |
| VERIZON | VICKY ANGEL | (805) 966-0434 | X | |
| COX CABLE OF SANTA BARBARA | DOUG SCHWARZBERG | (805) 881-3841 | X | |
| COUNTY OF SANTA BARBARA ROADS DEPT | WALTER RUBALCAVA | (805) 568-3047 | X | |
| COUNTY OF SANTA BARBARA PARKS DEPT | MITCH MEDEIROS | (805) 886-5076 | X | |
| *CONTACT DID NOT PROVIDE INFORMATION FOR DRAWINGS | | | | |



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TITLE SHEET

**LAKE CACHUMA WATER STORAGE AND
DISTRIBUTION SYSTEM IMPROVEMENTS**
COUNTY OF SANTA BARBARA, CALIFORNIA



G-1

USE OF PLANS

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ELECTRONIC INFORMATION IS INTENDED TO PROVIDE INFORMATION SUPPLEMENTAL AND SUBORDINATE TO THE CONSTRUCTION CONTRACT DOCUMENTS. LAYOUT AND CONSTRUCTION OF PROJECT ELEMENTS SHALL BE BASED ON DIMENSIONS AND INFORMATION INCLUDED ON THE SIGNED AND SEALED CONSTRUCTION CONTRACT DOCUMENTS WHICH SHALL CONTROL OVER ELECTRONIC INFORMATION. USER IS RESPONSIBLE FOR CONFIRMING LOCATION OF PROPOSED IMPROVEMENTS BASED ON DIMENSIONS AND INFORMATION INCLUDED ON THE CONSTRUCTION CONTRACT DOCUMENTS; INCONSISTENCIES BETWEEN THE ELECTRONIC INFORMATION AND THE CONSTRUCTION CONTRACT DOCUMENTS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER FOR RESOLUTION PRIOR TO CONSTRUCTION.

PROJECT ELEMENTS SUCH AS MANHOLES, CATCH BASINS, UTILITY VAULTS, VALVE ASSEMBLIES, STAIRS, RAMPS, WALLS, ETC. ARE SHOWN SCHEMATICALLY IN THE ELECTRONIC INFORMATION AND CONSTRUCTION OF THESE ELEMENTS SHALL BE IN ACCORDANCE WITH THE CONSTRUCTION NOTES AND DETAILS PRESENTED OR REFERENCED IN THE SIGNED AND SEALED CONSTRUCTION CONTACT DOCUMENTS. IMPROVEMENTS CONSTRUCTED BASED ON ELECTRONIC INFORMATION AND IN CONFLICT WITH THE DRAWING DIMENSIONS, DETAILS, AND THE CONSTRUCTION CONTACT DOCUMENTS SHALL BE REMOVED AND CONSTRUCTED IN THE PROPER LOCATION AND DIMENSIONS AT CONTRACTOR'S SOLE EXPENSE.

DIGITAL DRAWINGS ARE TYPICALLY A COMPILATION OF DRAWINGS FROM A NUMBER OF SOURCES AND, AS SUCH, THERE IS INFORMATION IN THE ELECTRONIC FILE ISSUED BY THE ENGINEER THAT WAS NOT DEVELOPED BY THE ENGINEER AND IS NOT AUTHORIZED BY THE ENGINEER FOR USE BY OTHERS. ELECTRONIC INFORMATION PROVIDED BY THE ENGINEER SHALL ONLY BE APPLICABLE FOR IMPROVEMENTS DESIGNED BY THE ENGINEER AND WHICH ARE SPECIFICALLY DESIGNATED BY CONSTRUCTION NOTES AND/OR DETAILS ON THE SIGNED AND SEALED CONTRACT DOCUMENTS.

IF DIGITAL FILES ARE OBTAINED WITH THE INTENT TO USE THEM FOR PROJECT STAKING, THEY SHALL ONLY BE USED BY A QUALIFIED ENGINEER OR LAND SURVEYOR REGISTERED IN THE STATE OF CALIFORNIA. DIGITAL INFORMATION SHALL ONLY BE USED FOR STAKING HORIZONTAL LOCATION OF PROPOSED IMPROVEMENTS AFTER IT HAS BEEN CONFIRMED WITH THE SIGNED AND SEALED CONSTRUCTION CONTRACT DOCUMENTS.

THE DIGITAL DRAWINGS ARE NOT INTENDED TO BE USED DIRECTLY FOR CONTROL OF CONTRACTOR'S GRADING OPERATIONS WITHOUT STAKING BY ENGINEER OR LAND SURVEYOR. THE INTERSECTION OF PROPOSED CUT AND FILL SLOPES WITH EXISTING GRADE IS APPROXIMATE WHERE SHOWN ON THE DRAWINGS AND SHALL BE CONFIRMED BY FIELD STAKING. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONSTRUCT SLOPES IN CONFORMANCE WITH THE SPECIFIED AND DETAILED REQUIREMENTS CONTAINED IN THE CONTRACT DOCUMENTS.

INITIAL AND LOCAL BENCHMARK:

FOUND PANEL NO. 8 SHOWN ON PAGE 11 OF 16: ELEVATION 811.2' FOUND PANEL NO. 5 SHOWN ON PAGE 6 OF 16: ELEVATION 752.3' EAST OF EASTLY WALL SHOWN ON PAGE 12 OF 16: ELEVATION = 757.0'
HORIZONTAL COORDINATE BASIS AND VERTICAL ELEVATION PROVIDED BY FLOWERS & ASSOCIATES PER PACIFIC WESTERN AERIAL SURVEYS MAP 1 OF 16 DATED MARCH 11, 1993: ELEVATION: 755.30' AT CONTROL POINT NO. 1

CAUTION! CONFIRM BENCHMARK DATA AND CONDITION WITH PROJECT SURVEYOR CARDENAS AND ASSOCIATES, INC. PRIOR TO USE.

BASIS OF BEARING:

BEARINGS AND DISTANCES PLOTTED PER BEST FIT FEATURES SHOWN ON PAGES 6, 11 & 12 OF 16 ON THE AERIAL MAPPING OF LAKE CACHUMA CAMP GROUNDS DATED MARCH 11, 1993.

TOPOGRAPHY:

EXISTING TOPOGRAPHY COMPILED BY WATERS LAND SURVEYING BASED ON AERIAL MAPPING OF LAKE CACHUMA DATED MARCH 11, 1993, SUPPLEMENTED BY FIELD SURVEYS BY CARDENAS AND ASSOCIATES SURVEYING, INC. AUGUST 23, 2007.

CONTROL POINTS:

| | | | | | | | | | |
|--------|------------|------------|----------|----------------|-----------------------|------------|------------|----------|-----------------------|
| CP #1 | 72106.8813 | 35838.5266 | 920.9628 | CP 12RFB-FLAG) | CP #33 | 72299.3717 | 40656.3440 | 772.4934 | CP/PK2 |
| CP #2 | 72400.4700 | 36019.9664 | 904.2936 | CP 12RFB-FLAG) | CP #34 | 72618.7332 | 40853.8536 | 755.9270 | CP/PK2 |
| CP #3 | 72073.2401 | 35811.2945 | 919.7622 | CP CHS X CONG | CP #1001 | 72556.8921 | 40962.4040 | 755.3000 | CP PARKS |
| CP #4 | 71959.2811 | 35955.0571 | 919.0228 | CP CHS X CONG | CP #1002 | 72516.0209 | 4056.5681 | 774.1000 | CP PARKS |
| CP #5 | 71963.5956 | 35980.7473 | 919.3837 | CP SPK+WHSKR | CP #1003 | 72512.3359 | 38621.5689 | 760.4000 | CP PARKS 1045 |
| CP #6 | 72108.9567 | 35747.8141 | 919.7080 | CP SPK+WHSKR | CP #1004 | 72282.0191 | 38631.3480 | 766.5000 | CP PARKS |
| CP #7 | 71877.7953 | 36021.8216 | 900.7101 | CP SPK+WHSKR | CP #1005 | 7104.2661 | 38717.7861 | 752.3000 | CP PARKS |
| CP #8 | 71857.2536 | 36096.0534 | 886.0627 | CP 1X2+TACK | CP #1006 | 7112.4420 | 36971.3981 | 811.2000 | CP PARKS 8 |
| CP #9 | 71884.1093 | 36144.6951 | 879.5052 | CP 1X2+TACK | CP #1007 | 71891.0110 | 36688.2723 | 808.4000 | CP PARKS 2051 |
| CP #10 | 71868.9821 | 36273.9915 | 849.5503 | CP 1X2+TACK | CP #1008 | 72618.0620 | 36957.8514 | 827.1000 | CP PARKS 2053 |
| CP #11 | 71909.0336 | 36336.7939 | 839.3837 | CP 1X2+TACK | CP #1009 | 72139.3939 | 36857.1282 | 760.4034 | CP/PK3 1025 |
| CP #12 | 71899.071 | 36448.4201 | 839.0670 | CP 1X2+TACK | CP #1010 | 72512.3359 | 38621.5689 | 760.4034 | CP/PK3 3 |
| CP #13 | 71867.9085 | 36542.7048 | 813.3342 | CP 1X2+TACK | CP #2908 | 72556.8921 | 40961.9222 | 755.4638 | CP1001 |
| CP #14 | 71922.9038 | 35844.8958 | 917.5457 | CP SPK+WSKR | CP #2909 | 72821.9912 | 38631.2225 | 766.5680 | CP 4 PRK LOK 1004 |
| CP #15 | 72249.0586 | 36566.4334 | 771.4190 | CP/PK 2 | CP #2910 | 72292.4420 | 36971.3981 | 811.2000 | CP PK CL RD 1006 |
| CP #17 | 72282.0505 | 36831.6989 | 766.3684 | CP CK | CP #2911 | 71239.5558 | 3671.8156 | 761.7691 | CP CK AC BECM NE 1006 |
| CP #18 | 72195.3535 | 36222.1960 | 900.9628 | CP CK | CP #2912 | 72512.3359 | 38621.5689 | 760.4034 | CP/PK3 1025 |
| CP #20 | 71912.5071 | 36971.9417 | 810.9608 | CP CK | CP #2913 | 71179.0264 | 36540.1022 | 774.0937 | CP 1X2 |
| CP #21 | 72106.8813 | 35838.5266 | 920.9628 | CP 1 RES | | | | | |
| CP #22 | 72018.9071 | 35747.8104 | 919.6855 | CP 5 RES | CP #63 (WLS (CP #1) | 73252.1811 | 36554.3877 | 759.6400 | SPK/CP |
| CP #23 | 71953.1727 | 35980.6789 | 918.9100 | CP 5 RES | CP #64 (WLS (CP #3) | 73393.7338 | 36436.1190 | 757.8500 | SPK/CP |
| CP #24 | 72040.3923 | 36018.9840 | 904.2994 | CP 2 RES | CP #97 (WLS (CP #97) | 73481.0768 | 36367.5072 | 761.9200 | SPK/CP |
| CP #25 | 71877.5535 | 36222.1960 | 900.9628 | CP 7 RES | CP #98 (WLS (CP #98) | 73481.0768 | 36367.5072 | 761.9200 | SPK/CP |
| CP #26 | 71912.5071 | 36971.9417 | 810.9608 | CP RES | CP #65 (WLS (CP #24) | 72053.8069 | 36838.3100 | 759.1000 | MAG/CP |
| CP #31 | 72363.1060 | 44843.1936 | 773.7300 | CP/PK | CP #67 (WLS (CP #288) | 71768.5642 | 36778.4574 | 739.9400 | SPK/CP |
| CP #32 | 72499.8846 | 40566.3440 | 771.5230 | CP/PK | CP #68 (WLS (CP #290) | 71782.9901 | 36852.6388 | 789.1800 | MAG/CP |

SURVEY MONUMENT PROTECTION:

PROTECT AND PRESERVE, IN PLACE, ALL SURVEY MONUMENTS AND BENCHMARKS. DO NOT DISTURB, MOVE, OR RELOCATE MONUMENTS OR BENCHMARKS WITHOUT THE PRIOR REVIEW AND APPROVAL BY THE AGENCY HAVING JURISDICTION OVER THE MONUMENT OR BENCHMARK. THE CONTRACTOR SHALL CONTRACT WITH A LICENSED SURVEYOR FOR MONUMENTS REQUIRING DISTURBANCE OR REMOVAL, AND THE SURVEYOR SHALL RESET THE MONUMENTS OR PROVIDE PERMANENT WITNESS MONUMENTS AND FILE THE REQUIRED DOCUMENTATION WITH THE COUNTY SURVEYOR PURSUANT TO BUSINESS AND PROFESSIONAL CODE SECTION 8771.

THIS DRAWING IS PROVIDED IN AN ELECTRONIC FORMAT AS A COURTESY REQUESTED BY THE USER. THE DELIVERY OF THE ELECTRONIC FILE DOES NOT CONSTITUTE THE DELIVERY OF OUR PROFESSIONAL WORK PRODUCT. THE SIGNED HARD COPY PREPARED FOR THE PROJECT CONSTITUTES OUR PROFESSIONAL WORK PRODUCT AND THE HARD COPY MUST BE REFERRED TO FOR THE CORRECT DESIGN INFORMATION. WE SHALL NOT BE RESPONSIBLE FOR ANY MODIFICATIONS MADE TO THE ELECTRONIC FILE, OR FOR ANY PRODUCTS DERIVED FROM THE ELECTRONIC FILE WHICH ARE NOT REVIEWED, SIGNED AND SEALED BY FLOWERS & ASSOCIATES, INC. (F&A). USER AGREES TO INDEMNIFY AND HOLD HARMLESS F&A FOR ALL COSTS AND DAMAGES IF USED.

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FLOWERS & ASSOCIATES, INC.
CIVIL ENGINEERS
201 N. Calle Cesar Chavez, Suite 100 Santa Barbara, CA 93103
Telephone (805) 966-2224

BY:  DATE: 5/20/09

PROJECT ENGINEER

THESE PLANS HAVE BEEN PREPARED SOLELY FOR USE FOR THE PROJECT SCOPE AND SITE SPECIFICALLY IDENTIFIED HEREON AT THE TIME THESE PLANS ARE SIGNED. THE ENGINEER PREPARING THESE PLANS WILL NOT BE RESPONSIBLE FOR, OR LIABLE FOR, USE OF ANY PART OF THESE PLANS, INCLUDING ANY NOTE OR DETAIL, FOR ANY UNAPPROVED OR REVISED PROJECT SCOPE, OR FOR ANY OTHER PROJECT AT THIS OR ANY OTHER SITE.



COUNTY OF SANTA BARBARA

COUNTY PARKS

610 Mission Canyon Road
Santa Barbara, CA 93105

| | |
|-------------------|-----------|
| Design: ELF | Check: BS |
| Drawn: SS | |
| Project Engineer: | |
| Date: | |

GENERAL PROJECT INFORMATION

**LAKE CACHUMA WATER STORAGE AND
DISTRIBUTION SYSTEM IMPROVEMENTS**
COUNTY OF SANTA BARBARA, CALIFORNIA

G-2

SHT. 2 OF 35

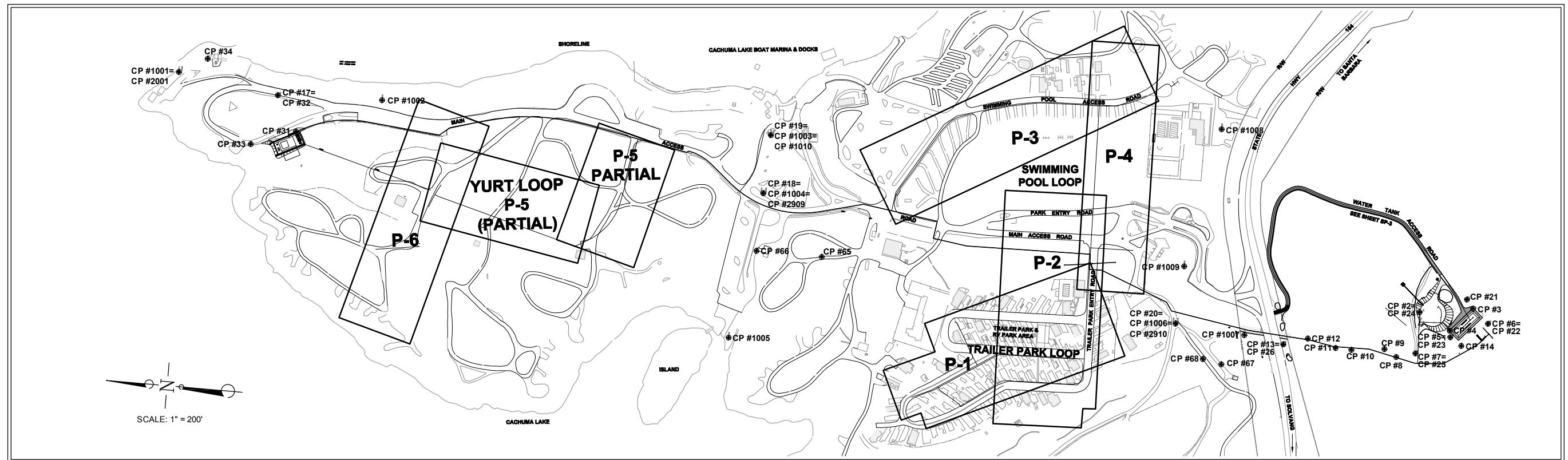
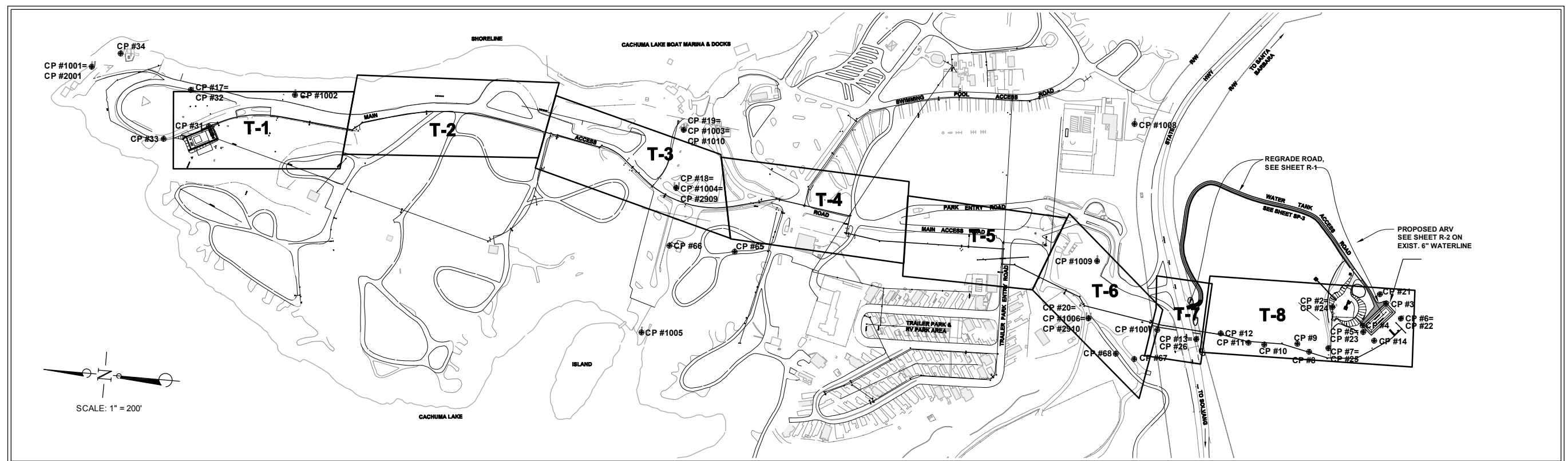
Table 13-1
Project Design Criteria

| Item | Existing | Proposed | Comments |
|----------------------------------------------------------------------------|---------------------------------------|---------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|
| Lake Water Level Max. Min. | 750 ft 650 ft | 753 ft 650ft | NAVD 29 |
| Raw Water Pump Number of pumps Flow Rate Head Power | 1 450 gpm 135 ft H2O 30 HP | 1 370 gpm 26 – 126 ft H2O (static) 30 HP | Recommend 1 ready-to-install standby pump, fixed or variable speed depending on membrane selected |
| Filtration system Design Flow Rate | Pressure Granular 440 gpm | MF Membrane 370 gpm | DHS granted 4-log removal of Giardia and <i>Cryptosporidium</i> and 0.5-log virus Backwash for 2 minutes every 1/2 hour |
| Backwash Pumps Number of pumps Flow Rate Head Power | 2 400 – 450 gpm 40 ft H2O HP | 2 475 gpm 40 ft H2O 10 HP | |
| Disinfection Requirements | Onsite hypochlorite generation | Onsite hypochlorite generation | |
| DHS Multi-Barrier Inactivation | N/A | 0.5-log Giardia 2-log virus | |
| Design Temperature – pH | Unknown | 10C – pH 8.0 | |
| Backwash Storage Number/Type Size | 1/steel 20,000 gal | 1/HDPE 500 gal | |
| Chlorine Contact Tanks Number/Type Size | 2/steel 10,000 gal | 2/steel, baffled 10,000 gal | Baffled steel tanks Proposed to provide 50% efficiency. Tanks are interconnected by a pipe for 0.5 log Giardia, 1mg/l |
| Free Chlorine Contact Time | | 27 mg/l - min | |
| Distribution Pump Number of pumps Flow Rate Head Power | 1 275 gpm 205 ft H2O 20 HP | 2 350 gpm 164 ft H2O (static) 30 HP | |
| Distribution Transmission Pipe Size | 6 in | 8 in | 8 inch diameter is minimum recommended pipe size |
| Storage Reservoir Size Type | 200,000 gal concrete | 200,000 gal steel | Existing 200,000 gal concrete reservoir to remain, total 400,000 gal |
| Waste Stream Storage Size | N/A. Discharge to Lake | 1,200 gal | |
| Waste Stream Pumps Number of pumps Flow Rate Head Power | N/A | 2 20 gpm 20 ft H2O HP | 20 gpm based on 4" pipe @ 1% slope and = 1/4 pipe capacity, fixed speed |

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GENERAL NOTES:

- ALL PIPE CROSSINGS SHOWN ON THE PLANS OR AS A RESULT OF FIELD MARKING SHALL BE POTHOLED, WEATHER OR NOT SHOWN ON THE DRAWINGS. POTHOLING SHALL BE PERFORMED PRIOR TO ORDERING ANY MATERIALS.
- B. PIPE SHALL BE LAID TO HAVE MINIMUM SLOPE OF 0.5%. ALL HIGH POINTS SHALL HAVE AN ARV. TWO - 2" ELECTRICAL CONDUITS WITH PULL BOXES, AS REQUIRED, AND EVERY 100', MAXIMUM SPACING, SHALL BE INSTALLED WITH THE TRANSMISSION PIPELINE, SEE SHEETS T-1 THROUGH T-8 AND R-2 FOR ALIGNMENT
- C. WORK SHALL BE SEQUENCED SUCH THAT THE WATER SYSTEM IS FULLY FUNCTIONAL AT ALL TIMES. SHUT-DOWNS FOR PIPELINE CUT-INS SHALL BE SCHEDULED WITH COUNTY STAFF 72 HOURS IN ADVANCE AND SHALL BE AT OFF PEAK HOURS OR AT NIGHT AS AGREED TO BY THE COUNTY STAFF. CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS AND EQUIPMENT FOR SHUT-DOWNS.
- D. ALL PIPE CROSSINGS SHALL HAVE A MINIMUM 12" CLEAR UNLESS OTHERWISE APPROVED IN ADVANCE BY THE ENGINEER.
- E. PIPES WITHIN THE WORK AREA SHALL BE CLEARED AND THE ENDS OF THE PIPE PLUGGED. PIPES ABANDONED IN PLACE SHALL HAVE ENDS PLUGGED.
- F. EXISTING PIPE MAY BE ASBESTOS CEMENT (A.C.) AND SHALL BE PROPERLY WORKED WITH, HANDLED AND DISPOSED OF. ALL COSTS FOR WORKING WITH EXISTING A.C. PIPE SHALL BE INCLUDED IN THE CONTRACT.
- G. ALL DETAILS APPLY WHETHER SPECIFICALLY CALLED OUT OR NOT.
- H. PROTECT TREE ROOTS DURING EXCAVATION AND TRENCHING OF ALL TREES, EXCEPT THOSE TREES CALLED FOR TO BE REMOVED.
- I. AT LOCATIONS WHERE PIPE SLEEVES ARE REQUIRED, CONTRACTOR SHALL CONFIRM THE SIZE OF THE CARRIER PIPING AND SPACE REQUIREMENTS OF JOINT RESTRAINTS PRIOR TO ORDERING STEEL SLEEVES. SLEEVES SHALL BE 1/4" THICK MINIMUM AND SHALL BE FUSION EPOXY LINED AND COATED.
- J. THE TOPOGRAPHIC MAPPING WAS FLOWN IN 1993, APPROXIMATELY 16 YEARS AGO. TREES HAVE MATURED AND CHANGES MADE SINCE THE TIME THE FLIGHT WAS MADE. IT IS ANTICIPATED THAT FIELD ADJUSTMENTS WILL BE REQUIRED. THE CONTRACTOR SHALL SURVEY THE ALIGNMENT, AND STAKE IT TO IDENTIFY [POTENTIAL CONFLICTS AND CONFIRM ALIGNMENT PRIOR TO ORDERING ANY MATERIALS. ANY CONFLICTS IDENTIFIED BY THE STAKING WILL BE REVIEWED WITH THE ENGINEER AND ADJUSTMENTS TO THE ALIGNMENT AGREED TO. THESE ADJUSTMENTS WILL BE REDLINED ON A SET OF PLANS BY THE CONTRACTOR AND CONFIRMED BY THE ENGINEER. ANY CHANGES IN COST SHALL BE NOTED BY THE CONTRACTOR IMMEDIATELY AND AGREED TO BY THE ENGINEER PRIOR TO ORDERING ANY MATERIALS. COST FOR RESTAKING SHALL BE INCLUDED IN THE BID.
- K. MUCH OF THE EXISTING PAVEMENT IS IN MARGINAL CONDITION. AT LOCATIONS THAT THE EDGE OF PIPE TRENCH IS 3' OR LESS FROM THE EDGE OF PAVEMENT THE CONTRACTOR SHALL REPLACE THE STRIP OF EXISTING PAVEMENT. PORTIONS BROKEN OFF DURING CONSTRUCTION ARE THE RESPONSIBILITY OF THE CONTRACTOR. TRENCH REPLACEMENT FINISH PAVEMENT SHALL JOIN EXISTING PAVEMENT AT A CLEAN SAW CUT LINE. ADDITIONAL SAW CUTTING AND PAVEMENT REPLACEMENT IS ANTICIPATED AND WILL BE REQUIRED TO BE PARALLEL AND PERPENDICULAR TO EDGE OF EXISTING PAVEMENT OR ROAD CENTERLINE AS DETERMINED BY THE ENGINEER. CONFORMING TO BROKEN PAVEMENT EDGES OR SKEWED CONFORM SAW CUT LINES WILL NOT BE ACCEPTED.
- L. POTHOLE ALL CONNECTION POINTS TO EXISTING PORTIONS OF THE WATER SYSTEM. THESE LOCATIONS ARE NOT SHOWN WITH THE POTHOLE SYMBOL USED FOR PROPOSED WATERLINE CROSSING WITH EXISTING SUB-STRUCTURE OR CONDUIT.



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FLOWERS & ASSOCIATES, INC.
CIVIL ENGINEERS
N. Calle Cesar Chavez, Suite 100 Santa Barbara, CA 93103
Telephone (805) 966-2224

BY

DATE: 5/20/09

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COUNTY OF SANTA BARBARA

COUNTY PARKS

610 Mission Canyon Road
Santa Barbara, CA 93105

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|-------------------|-----------|
| Design: ELF | Check: BS |
| Drawn: SS | |
| Project Engineer: | |
| Date: | |

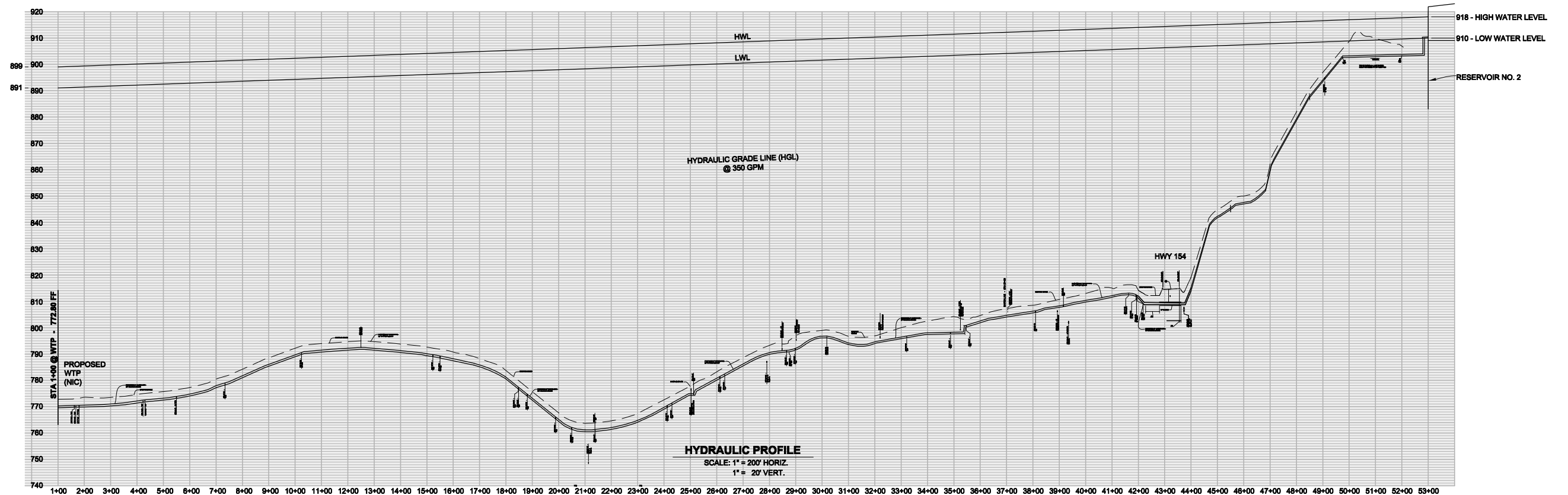
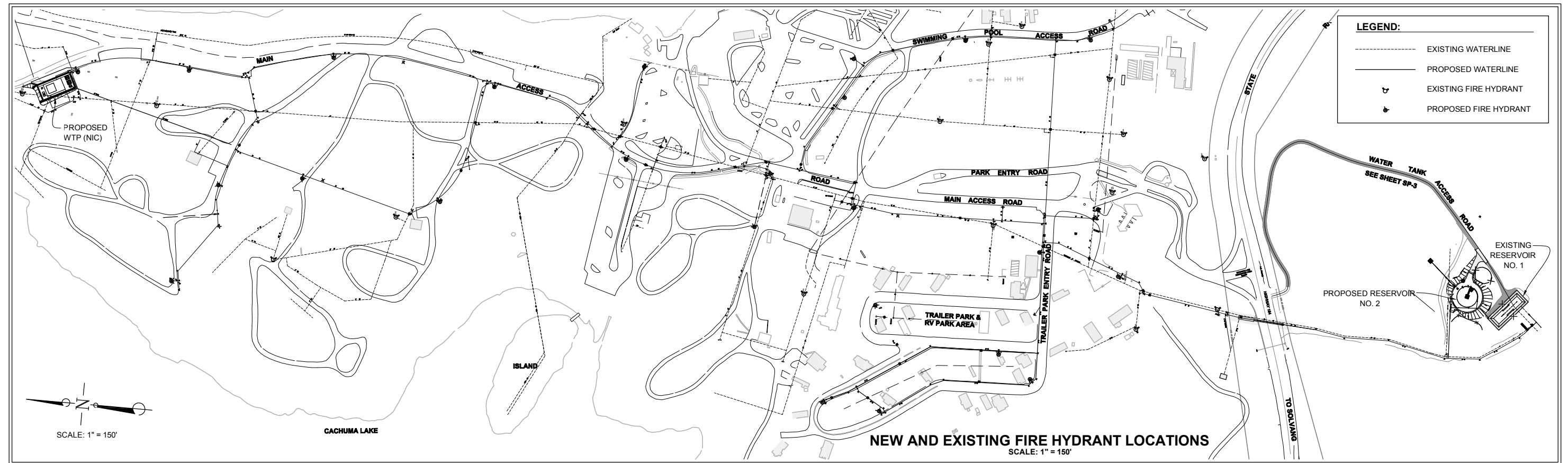
**OVERALL SITE PLAN &
REFERENCE TO DRAWINGS**

LAKE CACHUMA WATER STORAGE AND
DISTRIBUTION SYSTEM IMPROVEMENTS
COUNTY OF SANTA BARBARA, CALIFORNIA

G-3

PAGE 3 OF 35

N.O. 0352



THIS DRAWING IS PROVIDED IN AN ELECTRONIC FORMAT AS A COURTESY TO THE USER. THE USER AGREES THAT THE ELECTRONIC FILE COSTS WILL NOT CONSTITUTE THE DELIVERY OF OUR PROFESSIONAL WORK PRODUCT. THE SIGNED HARD COPY PREPARED FOR THE PROJECT CONSTITUTES OUR PROFESSIONAL WORK PRODUCT AND THE HAND COPY MUST BE REFERENCED TO FOR THE CORRECT DESIGN INFORMATION. WE SHALL NOT BE RESPONSIBLE FOR ANY MODIFICATIONS MADE TO THE ELECTRONIC FILE, OR FOR ANY PRODUCTS DERIVED FROM THE ELECTRONIC FILE WHICH ARE NOT REVIEWED, SIGNED AND SEALED BY FLOWERS & ASSOCIATES, INC. (F&A). USER AGREES TO INDEMNIFY AND HOLD HARMLESS F&A FOR ALL COSTS AND DAMAGES IF USED.

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| REVISIONS | | | |



FLOWERS & ASSOCIATES, INC.
CIVIL ENGINEERS
N. Calle Cesar Chavez, Suite 100 Santa Barbara, CA
Telephone (805) 966-2224

BY

PROJECT ENGINEER

DATE: 5/20/09

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COUNTY OF SANTA BARBARA

COUNTY PARKS

610 Mission Canyon Road
Santa Barbara, CA 93105

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|-------------------|-----------|
| Design: ELF | Check: BS |
| Drawn: SS | |
| Project Engineer: | |
| Date: | |

FIRE HYDRANT LOCATION MAP HYDRAULIC PROFILE

LAKE CACHUMA WATER STORAGE AND
DISTRIBUTION SYSTEM IMPROVEMENTS
COUNTY OF SANTA BARBARA, CALIFORNIA

G-4

4 OF 35

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